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TRANSMITTAL FORM

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Total Number of Pages in This Submission

7

Application Number

09/721,507

Filing Date

November 22, 2000

First Named Inventor

Joseph A. Affholter

Group Art Unit

Unassigned

Examiner Name

Unassigned

Attorney Docket Number

02-104244US

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ENCLOSURES (check all that apply)

- ☐ Fee Transmittal Form
 - ☐ Fee Attached
- ☐ Amendment / Response
 - ☐ After Final
 - ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
- ☐ Express Abandonment Request
- ☒ Information Disclosure Statement
- ☐ Certified Copy of Priority Document(s)
- ☐ Response to Missing Parts/ Incomplete Application
 - ☐ Response to Missing Parts under 37 CFR 1.52 or 1.53

- ☐ Assignment Papers (for an Application)
- ☐ Drawing(s)
- ☐ Licensing-related Papers
- ☐ Petition Routing Slip (PTO/SB/69) and Accompanying Petition
- ☐ Petition to Convert to a Provisional Application
- ☐ Power of Attorney, Revocation Change of Correspondence Address
- ☐ Terminal Disclaimer
- ☐ Small Entity Statement
- ☐ Request for Refund

- ☐ After Allowance Communication to Group
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- ☐ Appeal Communication to Group (Appeal Notice, Brief, Reply Brief)
- ☐ Proprietary Information
- ☐ Status Letter
- ☒ Additional Enclosure(s) (please identify below):

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Please charge Deposit Account No. 50-0893 for any additional fees associated with this paper or during the pendency of this application, including any extensions of time for consideration of the documents enclosed.

Remarks

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Christopher C. Sappenfield Reg. No. 45,073 The Law Offices of Jonathan Alan Quine

Signature

Date

June 1, 2001

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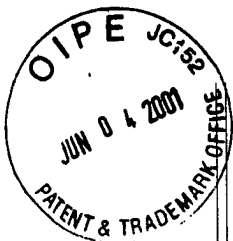
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By Alexandra Allison
Alexandra Allison

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Attorney Docket No. 02-104244US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Joseph A. Affholter, *et al.*

Application No.: 09/721,507

Filed: November 22, 2000

For: Single-Stranded Nucleic acid
Template-Mediated recombination and
nucleic acid fragment isolation

Examiner: Unassigned

Art Unit: Unassigned

SUPPLEMENTAL INFORMATION
DISCLOSURE STATEMENT UNDER 37
CFR § 1.97 and § 1.98

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

The references cited on attached PTO-1449 forms are being called to the attention of the Examiner to make of record references cited in parent application USSN 09/656,549 filed September 6, 2000. Pursuant to 37 CFR § 1.98(d), copies of references cited in parent application USSN 09/656,549 filed September 6, 2000 are not provided. However the applicants will gladly provided fresh copies of any references requested by the Examiner. It is respectfully requested that the cited information on the previously submitted 1449 forms

for application USSN 09/656,549 filed September 6, 2000 be expressly considered during the prosecution of this application, and that references be made of record therein and appear among the "references cited" on any patent to issue therefrom.

As provided for by 37 CFR 1.97(g) and (h), no inference should be made that the information and references cited are prior art merely because they are in this statement and no representation is being made that a search has been conducted or that this statement encompasses all the possible relevant information.

Applicant believes that no fee is required for submission of this statement, since it is being submitted prior to the first Office Action. However, if a fee is required, the Commissioner is authorized to deduct such fee from the undersigned's Deposit Account No. 50-0893. Please deduct any additional fees from, or credit any overpayment to, the above-noted Deposit Account.

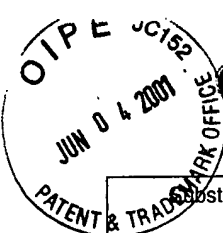
Respectfully submitted,



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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)	Substitute for form 1449A-B/PTO		Complete if Known	
	Application Number		09/656549 09/721,507	
	Filing Date		September 6, 2000 11-22-00	
	First Named Inventor		Joseph A. Affholter	
	Group Art Unit		1645	
	Examiner Name		Unassigned	
Attorney Docket Number		02-104240US		

U.S. PATENT DOCUMENTS						
Examiner Initials	Cite No.	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code (if known)			
	AA	5,756,316		Schellenberger	05-26-1998	
	AB	5,783,431		Peterson et al.	07-21-1998	
	AC	5,798,208		Crea	08-25-1998	
	AD	5,824,485		Thomspon, et al.	10-20-1998	
	AE	5,830,650		Crea	11-03-1998	
	AF	6,057,103		Short	05-02-2000	
	AG	6,165,793		Stemmer	12-26-2000	
	AH	6,168,919		Short	01-02-2001	
	AI	6,171,820		Short	01-09-2001	
	AJ	6,174,673		Short, et al.	01-16-2001	
	AK	6,180,406		Stemmer	1-30-2001	

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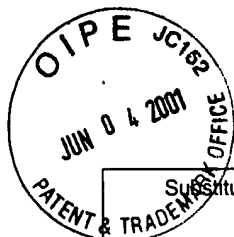
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FOREIGN PATENTMT DOCUMENTS								
Examiner Initials	Cite No.	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T
		Office	Number	Kind Code (if known)				
	AL	EP	0527809		Crea, Roberto	08-19-1995		
	AM	WO	95/22625		Affymax Tech. N.V.	08-24-1995		
	AN	WO	96/33207		Glaxo Group Limited	10-24-1996		
	AO	WO	97/33957		Amway Corp.	09-18-1997		
	AP	WO	98/42727		SRI International	10-01-1998		
	AQ	WO	99/29902		California Institute of Technology	06-17-1999		
	AR	WO	00/42560		Maxygen, Inc.	07-20-2000		
	AS	WO	00/42561		Maxygen, Inc.	07-20-2000		
	AT	WO	00/46344		Diversa Corp.	08-10-2000		
	AU	WO	00/53744		Diversa Corp.	09-14-2000		
	AV	WO	00/58517		Diversa Corp.	10-05-2000		

Examiner Signature		Date Considered	
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



Substitute for form 1449A-B/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)	Complete if Known	
	Application Number	09/656549 09/721,507
	Filing Date	September 6, 2000 11-22-00
	First Named Inventor	Joseph A. Affholter
	Group Art Unit	1645
	Examiner Name	Unassigned
	Attorney Docket Number	02-104240US

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OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS		
Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
	AW	Arnold (1993) "Protein engineering for unusual environments" <i>Current Opinion in Biotechnology</i> 4:450-455
	AX	Arkin & Youvan (1992) <i>Proc. Natl. Acad. Sci. USA</i> 89:7811-7815
	AY	Arkin and Youvan (1992) "Optimizing nucleotide mixtures to encode specific subsets of amino acids for semi-random mutagenesis" <i>Biotechnology</i> 10:297-300
	AZ	Bass et al. (1988) "Mutant Trp repressors with new DNA-binding specificities" <i>Science</i> 242:240-245)
	BA	Botstein & Shortle (1985) "Strategies and applications of in vitro mutagenesis" <i>Science</i> 229:1193-1201
	BB	Breyer and Sauer (1989) "Mutational analysis of the fine specificity of binding of monoclonal antibody 51F to lambda repressor" <i>J. Biol. Chem.</i> 264:13355-60
	BC	Caldwell et al. (1992) <i>PCR Methods Applic.</i> 2:28-33
	BD	Carter (1986) "Site-directed mutagenesis" <i>Biochem. J.</i> 237:1-7
	BE	Carter (1987) "Improved oligonucleotide-directed mutagenesis using M13 vectors" <i>Methods in Enzymol.</i> 154: 382-403
	BF	Carter et al. (1985) "Improved oligonucleotide site-directed mutagenesis using M13 vectors" <i>Nucl. Acids Res.</i> 13: 4431-4443
	BG	Dale et al. (1996) "Oligonucleotide-directed random mutagenesis using the phosphorothioate method" <i>Methods Mol. Biol.</i> 57:369-374
	BH	delCardayre, S.B. and Raines, R.T. (1995) <i>Anal. Biochem.</i> 225, 176
	BI	Delegrave and Youvan (1993) <i>Biotechnology Research</i> 11:1548-1552
	BJ	Eghtedarzadeh & Henikoff (1986) "Use of oligonucleotides to generate large deletions" <i>Nucl. Acids Res.</i> 14: 5115
	BK	Fritz et al. (1988) "Oligonucleotide-directed construction of mutations: a gapped duplex DNA procedure without enzymatic reactions in vitro" <i>Nucl. Acids Res.</i> 16: 6987-6999
	BL	Grundström et al. (1985) "Oligonucleotide-directed mutagenesis by microscale 'shot-gun' gene synthesis" <i>Nucl. Acids Res.</i> 13: 3305-3316
	BM	Guzman et al. (1995) "Tight regulation, modulation, and high-level expression by vectors containing the arabinose PBAD promoter" <i>J. Bacteriol.</i> 177(14):4121-4130
	BN	Jirholt et al. (1998) "Exploiting sequence space: shuffling in vivo formed complementarity determining regions into a master framework" <i>Gene</i> 215: 471

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Substitute for form 1449A-B/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)	Complete if Known	
	Application Number	09/656549 09/721,507
	Filing Date	September 6, 2000 1-22-00
	First Named Inventor	Joseph A. Affholter
	Group Art Unit	1645
	Examiner Name	Unassigned
	Attorney Docket Number	02-104240US

BO	Johnson, M.G. (1996) <i>Epicentre Forum</i> 3(4),7	
BP	Kramer & Fritz (1987) <i>Methods in Enzymol.</i> "Oligonucleotide-directed construction of mutations via gapped duplex DNA" 154:350-367	
BQ	Kramer et al. (1984) "Point Mismatch Repair" <i>Cell</i> 38:879-887	
BR	Kramer et al. (1984) "The gapped duplex DNA approach to oligonucleotide-directed mutation construction" <i>Nucl. Acids Res.</i> 12: 9441-9456	
BS	Kramer et al. (1988) "Improved enzymatic in vitro reactions in the gapped duplex DNA approach to oligonucleotide-directed construction of mutations" <i>Nucl. Acids Res.</i> 16: 7207	
BT	Kunkel (1985) "Rapid and efficient site-specific mutagenesis without phenotypic selection" <i>Proc. Natl. Acad. Sci. USA</i> 82:488-492	
BU	Kunkel (1987) "The efficiency of oligonucleotide directed mutagenesis" in <i>Nucleic Acids & Molecular Biology</i> (Eckstein, F. and Lilley, D.M.J. eds., Springer Verlag, Berlin)	
BV	Kunkel et al. (1987) "Rapid and efficient site-specific mutagenesis without phenotypic selection" <i>Methods in Enzymol.</i> 154, 367-382	
BW	Leung et al. (1989) <i>Technique</i> 1:11-15	
BX	Lim and Sauer (1991) "The role of internal packing interactions in determining the structure and stability of a protein" <i>J. Mol. Biol.</i> 219:359-76	
BY	Ling et al. (1997) "Approaches to DNA mutagenesis..." <i>Anal Biochem.</i> 254(2): 157-178	
BZ	Mandecki, Oligonucleotide-directed double-strand break repair in plasmids of <i>Escherichia coli</i> : a method for site-specific mutagenesis" <i>Proc. Natl. Acad. Sci. USA</i> , 83:7177-7181	
CA	Meador, J and Kennell, D. (1990) <i>Gene</i> 95:1	
CB	Meador, J. et al. (1990) <i>Eur J. Biochem.</i> 187:549	
CC	Nakamaye & Eckstein (1986) "Inhibition of restriction endonuclease Nci I cleavage by phosphorothioate groups and its application to oligonucleotide-directed mutagenesis" <i>Nucl. Acids Res.</i> 14: 9679-9698	
CD	Nambiar et al. (1984) "Total synthesis and cloning of a gene coding for the ribonuclease S protein" <i>Science</i> 223:1299-1301	
CE	Nikiforov et al. (1994) "The Use of Phosphorothioate Primers and Exonuclease Hydrolysis for the Preparation of Single-Stranded PCR Products and their Detection by Solid-Phase Hybridization," <i>PCR Methods and Applications</i> 3:285-291	
CF	Ostermeier et al. (1999) "A combinatorial approach to hybrid enzymes independent of DNA homology" <i>Nature Biotech</i> 17:1205	
CG	Ostermeier et al. (1999) "Combinatorial Protein Engineering by Incremental Truncation," <i>Proc. Natl. Acad. Sci. USA</i> , 96: 3562-67	

Examiner Signature		Date Considered	
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Substitute for form 1449A-B/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)	Complete if Known	
	Application Number	09/056549-09/721,807
	Filing Date	September 6, 2000 11-22-00
	First Named Inventor	Joseph A. Affholter
	Group Art Unit	1645
	Examiner Name	Unassigned
	Attorney Docket Number	02-104240US

CH	Ostermeier et al. (1999), "Incremental Truncation as a Strategy in the Engineering of Novel Biocatalysts," <i>Biological and Medicinal Chemistry</i> , 7: 2139-44	
CI	Porter et al. (1997) <i>Nucleic Acids Res.</i> 25(8):1611-1617	
CJ	Reidhaar-Olson et al. (1988) <i>Science</i> , 241:53-57	
CK	Reidhaar-Olson et al. (1991) <i>Methods Enzymol.</i> 208:564-86	
CL	Sakamar and Khorana (1988) "Total synthesis and expression of a gene for the a-subunit of bovine rod outer segment guanine..." <i>Nucl. Acids Res.</i> 14: 6361-6372	
CM	Sayers et al. (1988) "Strand specific cleavage of phosphorothioate-containing DNA by reaction with restriction endonucleases..." <i>Nucl. Acids Res.</i> 16: 803-814	
CN	Smith (1985) "In vitro mutagenesis" <i>Ann. Rev. Genet.</i> 19:423-462	
CO	Stemmer et al., (1995) "Single-step assembly of a gene and entire plasmid from large numbers of oligodeoxy-ribonucleotides" <i>Gene</i> , 164:49-53	
CP	Taylor et al. (1985) "The rapid generation of oligonucleotide-directed mutations at high frequency using phosphorothioate-modified DNA" <i>Nucl. Acids Res.</i> 13: 8765-8787 (1985)	
CQ	Taylor et al. (1985) "The use of phosphorothioate-modified DNA in restriction enzyme reactions to prepare nicked DNA" <i>Nucl. Acids Res.</i> 13: 8749-8764	
CR	Wells et al. (1985) "Cassette mutagenesis: an efficient method for generation of multiple mutations at defined sites" <i>Gene</i> 34:315-323	
CS	Wells et al. (1986) "Importance of hydrogen-bond formation in stabilizing the transition state of subtilisin" <i>Phil. Trans. R. Soc. Lond. A</i> 317: 415-423	
CT	Zhao and Arnold (1997) "Functional and nonfunctional mutations distinguished by random recombination of homologous genes," <i>Proc. Natl. Acad. Sci. U.S.A.</i> 94(15):7997-8000	
CU	Zhao, et al., "Molecular evolution by staggered extension process (StEP) <i>in vitro</i> recombination," <i>Nature Biotechnology</i> (March 1998), 16(3):258-61	
CV	Zhou et al., (1995) <i>Biotechniques</i> 19:34-35	
CW	Zhou et al., (1998) "Regulatory Roles of the P Domain of the Subtilisin-like Prohormone Convertases," <i>J. Biol. Chem.</i> , 273(18):11107	
CX	Zoller & Smith (1982) "Oligonucleotide-directed mutagenesis using M13-derived vectors: an efficient and general procedure for the production of point mutations in any DNA fragment" <i>Nucleic Acids Res.</i> 10:6487-6500	
CY	Zoller & Smith (1983) "Oligonucleotide-directed mutagenesis of DNA fragments cloned into M13 vectors" <i>Methods in Enzymol.</i> 100:468-500	
CZ	Zoller & Smith (1987) "Oligonucleotide-directed mutagenesis: a simple method using two oligonucleotide primers" <i>Methods in Enzymol.</i> 154:329-350	

Examiner Signature		Date Considered	
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